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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,348	08/13/2001	Masatoshi Yamamoto	DP-793 US	6114
466	7590	04/01/2005	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			MERED, HABTE	
			ART UNIT	PAPER NUMBER
			2662	

DATE MAILED: 04/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/927,348

Applicant(s)

YAMAMOTO, MASATOSHI

Examiner

Habte Mered

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07/25/03&06/0704</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Johansson et al (US 6, 333, 936) hereinafter referred to as Johansson, in view of Katinakis et al (US 6, 389, 039), hereinafter referred to as Katinakis.
3. Regarding **claim 1**, *Johansson discloses an efficient resource allocation system useful for allocating shared resources in any hierarchical system in general and in a communication system in particular. Johansson discloses the shared resources can either be hardware or software entities. For instance a "channel" can be a shared resource it can be a carrier frequency, a time slot, a code, or a hybrid of these, according to the particular access technique used by the communication system. Figure 3 is a resource management system that can be used in a system like the WCDMA packet transmission system shown in Figure 8. Johansson's resource allocation system shown in Figure 3 has a resource map database (i.e. resource pool), a resource management means (i.e. resource handler), and a resource-monitoring unit (i.e. statistics analyzer).*

Johansson discloses packet transmission system (**see Figures 3 and 8**) in which each terminal unit (**element 164 in Figure 8**) transmits data to a resource monitoring device of a network (**element 162 in Figure 8; Base Station (BS)**) for sending the data to another terminal unit via the network, wherein the resource monitoring device includes:

a resource map database (**element 12 in Figures 3 and 8**) for storing a resource map in which central points of resources that can be used by the terminal units are described (**Column 1, Lines 46-59; Column 2, Lines 60-67; Column 3, Lines 11-44; Column 5, Lines 10-15; Column 6, Lines 50-55;**); and

a resource management means (**element 11 in Figures 3 and 8; i.e. resource handler**) for obtaining the resource map from the resource map database and transmitting the resource map to the terminal units (**Column 3, Lines 45-48 and Column 5, Lines 27-32**).

Johansson, however, fails to expressly disclose a resource detection and acquisition means exist in each terminal unit. Even though Johansson discloses a resource allocation method that will automatically force the use of adjacent idle resources, Johansson fails to expressly disclose the additional resources requested by the terminal units are adjacent resources.

Katinakis discloses a method by which a mobile station can acquire additional resources to meet its needs by scanning for idle channels adjacent to the channels used by the mobile station and the serving Base Station. Katinakis further discloses that each terminal unit includes:

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a resource detection means for detecting resource usage statuses of terminal units that are using resources adjacent to a resource used by the terminal unit to which the resource detection means belongs by use of the resource map supplied from the resource monitoring device(Column 3, Lines 32-37; Steps 21 -23 in Figure 2; Katinakis describes the resource detection ability of the terminal unit from the fact that when it is in need of additional channels the terminal unit scans available channels to identify the near-by idle channels in the serving and adjacent cells. Of course, the initial channel assignment forwarded to the mobile station is the resource map and provides the baseline to determine which channel and cell site is an adjacent resource. These steps are shown in steps 21-23 of Figure 2); and

a resource acquisition means for finding idle resources between the resource used by the terminal unit and the adjacent resources based on the resource usage statuses detected by the resource detection means and acquiring all or part of the idle resources so as to be incorporated in the usable resource of the terminal unit (Column 3, Lines 40-49; Steps 24-26 of Figure 2; Katinakis describes the resource acquisition means of the terminal units from the fact that the units are able to acquire the idle channels or free time slots by immediately reserving and selecting the channels and filling each channel with data packets. Of course the terminal units are able to determine if the channels are idle or not by determining the channel usage status.)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Johansson's system to incorporate resource detection and acquisition means in each terminal unit for acquiring additional adjacent resources, the motivation being able to decrease the load in the serving base station and increase the data transfer rate.

4. Regarding **claim 2**, Johansson and Katinakis disclose all aspects of the claimed invention as set forth in the rejection of claim 1 including a packet transmission system wherein:

the resource monitoring device further includes a resource monitoring means **(element 13, Johansson's Figure 3, i.e. Statistics Analyzer)** for monitoring resource usage statuses of the terminal units by monitoring packet traffic from the terminal units, **(Johansson: Column 2, Lines 49-59; Column 3, Lines 55-64; Column 4, Lines 1-7; Johansson's resource allocation means measures the number of requests on a resource basis to ensure that resource units are evenly utilized in resource pool. The traffic statistics about a number of requests for a resource level allows the statistics analyzer to monitor packet traffic from the terminal units (i.e. mobile station). Further, all base stations at some level monitor packet traffic from and to the mobile stations they serve.)** and

the resource management means includes a resource map update means for receiving the resource usage statuses of the terminal units from the resource monitoring means, finding a terminal unit whose resource is insufficient by use of the resource usage statuses, and updating the resource map by setting a reservation resource

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reference point in an appropriate idle zone of the resource map (**Johansson: Column 5, Lines 32-44 and Column 8, Lines 16-46**) so as to be used as the central point of a usable resource which is newly assigned to the terminal unit whose resource is insufficient, (**Johansson: Column 3, Lines 54-60; Column 4, Lines 45-63; and Column 6, Lines 8-16; Johansson discloses an efficient resource allocation policy where idle resources are exhausted at the lowest level and near to the resource that is in use.**) and

the resource acquisition means of terminal units that are using resources adjacent to the reservation resource reference point in the updated resource map reduce their resources so that an idle resource zone will be prepared around the reservation resource reference point, (**Katinakis: Column 3, Lines 32-53 and Figure 2; This is also a consequence of the fact that once a mobile station needing additional resources acquires adjacent idle channels from adjacent base stations then of course the adjacent base stations have reduced their resources and will be reflected in the updated resource map.**) and

the resource acquisition means of the terminal unit whose resource is insufficient sets a new resource for the terminal unit in the idle resource zone. (**Katinakis: Column 3, Lines 32-53 and Figure 2**)

5. Regarding **claims 3, 7, and 11**, Johansson and Katinakis disclose all aspects of the claimed invention as set forth in the rejection of claim 1 including a packet transmission system, wherein the data transmission from the terminal units to the resource monitoring device is executed by means of CDMA (Code Division Multiple

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Access). (**Johansson: Column 4, Lines 10-15; Column 9, Lines 25-26 and 34-35; Figures 8 and 9; and Katinakis: Column 2, Lines 39-40**);

6. Regarding **claims 4, 8, and 12**, Johansson and Katinakis disclose all aspects of the claimed invention as set forth in the rejection of claim 1 including a packet transmission system packet transmission system, wherein the resource acquisition means acquires approximately 50% of the idle resources so as to be incorporated in the usable resource of the terminal unit. **(This is strictly a design and operation issue. To increase the data transfer rate from the requester's perspective it would be great to use 100% of the available idle resource. But since the modified invention of Johansson and Katinakis is a system that makes sure resource units are evenly utilized in a resource pool. For instance when voice usage is low during non-peak hours it will allow higher use of idle channels for data use but still guaranteeing some level of voice service. See also Johansson: Column 2, Lines 49-50; Column 3, Lines 63-67 and Column 4, Lines 1-7)**

7. Regarding **claims 5 and 9**, Johansson and Katinakis disclose all aspects of the claimed invention as set forth in the rejection of claim 1 including a packet transmission method for a packet transmission system **(see Johansson's Figures 3 and 8)** in which each terminal unit **(element 164 in Johansson's Figure 8)** transmits data to a resource monitoring device of a network **(element 162 in Johansson's Figure 8; Base Station (BS))** for sending the data to another terminal unit via the network, comprising the steps of:

a resource map reception step in which each terminal unit receives a resource map in which central points of resources that can be used by the terminal units are described from the resource monitoring device (**Johansson: Column 1, Lines 24-31 and Column 9: Lines 5-12**);

an adjacent resource usage status detection step in which the terminal unit detects resource usage statuses of terminal units that are using resources adjacent to a resource used by the terminal unit by use of the resource map supplied from the resource monitoring device (**Katinakis: Column 3, Lines 32-37; Steps 21 -23 in Figure 2**); and

a resource acquisition step in which the terminal unit finds idle resources between the resource used by the terminal unit and the adjacent resources based on the resource usage statuses detected in the adjacent resource usage status detection step and acquires all or part of the idle resources so as to be incorporated in the usable resource of the terminal unit(**Katinakis: Column 3, Lines 40-49; Steps 24-26 of Figure 2**).

8. Regarding **claims 6 and 10**, Johansson and Katinakis disclose all aspects of the claimed invention as set forth in the rejection of claim 1 including a packet transmission method, further comprising:

a resource usage status monitoring step in which the resource monitoring device monitors resource usage statuses of the terminal units by monitoring packet traffic from the terminal units (**Johansson: Column 2, Lines 49-59; Column 3, Lines 55-64; Column 4, Lines 1-7**;**Johansson's resource allocation means measures the**

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number of requests on a resource basis to ensure that resource units are evenly utilized in resource pool. The traffic statistics about a number of requests for a resource level allows the statistics analyzer to monitor packet traffic from the terminal units (i.e. mobile station). Further, all base stations at some level monitor packet traffic from and to the mobile stations they serve.)

a resource map update step in which the resource monitoring device finds a terminal unit whose resource is insufficient by use of the resource usage statuses and updates the resource map by setting a reservation resource reference point in an appropriate idle zone of the resource map (**Johansson: Column 5, Lines 32-44 and Column 8, Lines 16-46**) so as to be used as the central point of a usable resource which is newly assigned to the terminal unit whose resource is insufficient (**Johansson: Column 3, Lines 54-60; Column 4, Lines 45-63; and Column 6, Lines 8-16; Johansson discloses an efficient resource allocation policy where idle resources are exhausted at the lowest level and near to the resource that is in use.);**

a resource reduction step in which terminal units that are using resources adjacent to the reservation resource reference point in the updated resource map reduce their resources so that an idle resource zone will be prepared around the reservation resource reference point (**Katinakis: Column 3, Lines 32-53 and Figure 2; This is also a consequence of the fact that once a mobile station needing additional resources acquires adjacent idle channels from adjacent base stations then of course the adjacent base stations have reduced their resources and will be reflected in the updated resource map.); and**

a resource setting step in which the terminal unit whose resource is insufficient sets its new resource in the idle resource zone prepared in the resource reduction step (Katinakis: Column 3, Lines 32-53 and Figure 2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to burst – level resource allocation in cellular systems:

US Patent (6, 418, 148) to Kumar et al

US Patent (6, 374, 112) to Widegren et al

US Patent (6, 868, 277) to Cerwall et al

US Patent (6, 647, 265) to Olofsson et al

US Patent (6, 748, 220) to Chow et al

US Patent (6, 529, 497) to Hjelm et al

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Habte Mered whose telephone number is 571 272 6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571 272 3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HM
03-18-2005

A handwritten signature in black ink, appearing to read 'Hassan Kizou', with a large, stylized loop at the end.

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600